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basic imagery interpretation report

Leningrad Silo Components Research-and-Development Facility (S)

STRATEGIC WEAPONS INDUSTRIAL FACILITIES

[redacted]

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JULY 1982
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INSTALLATION OR ACTIVITY NAME					COUNTRY
Leningrad Silo Components Research-and-Development Facility					UR
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NO.	COMIREX NO.	NIETB NO.
NA	60-17-20N 030-10-10E				

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MAP REFERENCE

SAC. USATC, Series 200, Sheet 0103-25, scale 1:200,000

LATEST IMAGERY USED	NEGATION DATE (If required)
See Abstract	NA

ABSTRACT

1. (S/WN) This report discusses activity and developments at the Leningrad Silo Components Research-and-Development (R&D) Facility, USSR. Information acquired between September 1974 and the information cutoff date of [redacted] was used in this report. The Leningrad R&D facility has been used for development/acceptance testing of silo doors and associated opening/closing mechanisms for new ICBM silos. Recent test activity and equipment observed in the original Leningrad test area suggest that the facility is also being used to test modifications made to older silo types.

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2. (S/WN) The information in this report supplements that provided in DIA report [redacted] A location map and six annotated photographs are included in this report.

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INTRODUCTION

3. (S/WN) The Leningrad Silo Components R&D Facility is in heavily wooded, flat-to-rolling terrain 20 nautical miles north of Leningrad. The heavily secured, road-served facility contains two adjoining areas: a diamond-shaped original test area of approximately 45 acres and a new expansion area of approximately 100 acres (Figure 1). The original test area contains the upper sections of three test silos; several small, unidentified test sites; a possible new storage area; and 38 buildings. The new expansion area contains a five-bay vehicle garage; a heating plant; two probable temporary barracks for construction workers; four other buildings which are under construction; and tree clearings for future structures (Figure 2).

BASIC DESCRIPTION

Original Test Area

4. (S/WN) The area contains the upper sections of three silos—a type IIIE and a type IIIH ICBM silo (both constructed prior to 1975)[1] and an unidentified silo constructed between April 1975 and August 1978 (Figure 1).

Type IIIE Silo Test Site

5. (S/WN) This site—in the north corner of the original test area—was initially seen under construction in March 1965, approximately 8 months before construction of the prototype IIIE silo at Plesetsk Missile/Space Test Center SSM [redacted][1] The site, which includes a type IIIE silo door and door pocket, was complete by April 1966. A conduit covered with concrete blocks extended from the site, through a small earth-mounded building, and to an L-shaped probable control building. The conduit possibly houses cables which support test operations. The silo was open in August 1970 but was closed on all subsequent coverages. By July 1972, the site appeared to have deteriorated. Possibly it had been abandoned.

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6. (S/WN) The site appeared to be inactive until May 1979, when the silo door was again open. By [redacted] diameter cylinder had been erected at a 45-degree angle over the open silo. Another cylinder, [redacted] in diameter, was on the ground nearby. On [redacted] the smaller cylinder was suspended beneath the erected cylinder (Figure 3). Since then, the two objects have remained in this configuration. Very little vehicular traffic has been observed around the site since the emplacement of the cylinders. Small van trucks have been seen on two occasions. Since March 1981, snow has been plowed from the road extending to the site, and a canvas shelter has been placed over the silo aperture.

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7. (S/WN) The two cylinders may be related to modifications made to two type IIIE silos, launch test sites 23 and 24, at the Plesetsk test range. These modifications included the removal of four cylinders [redacted] meters total length) and the launch stand from the silo, the removal of ground support equipment (GSE) alignment rails, and the construction of small, buried launch control buildings. These modifications probably were made in preparation for flight-testing a new solid-propellant ICBM.

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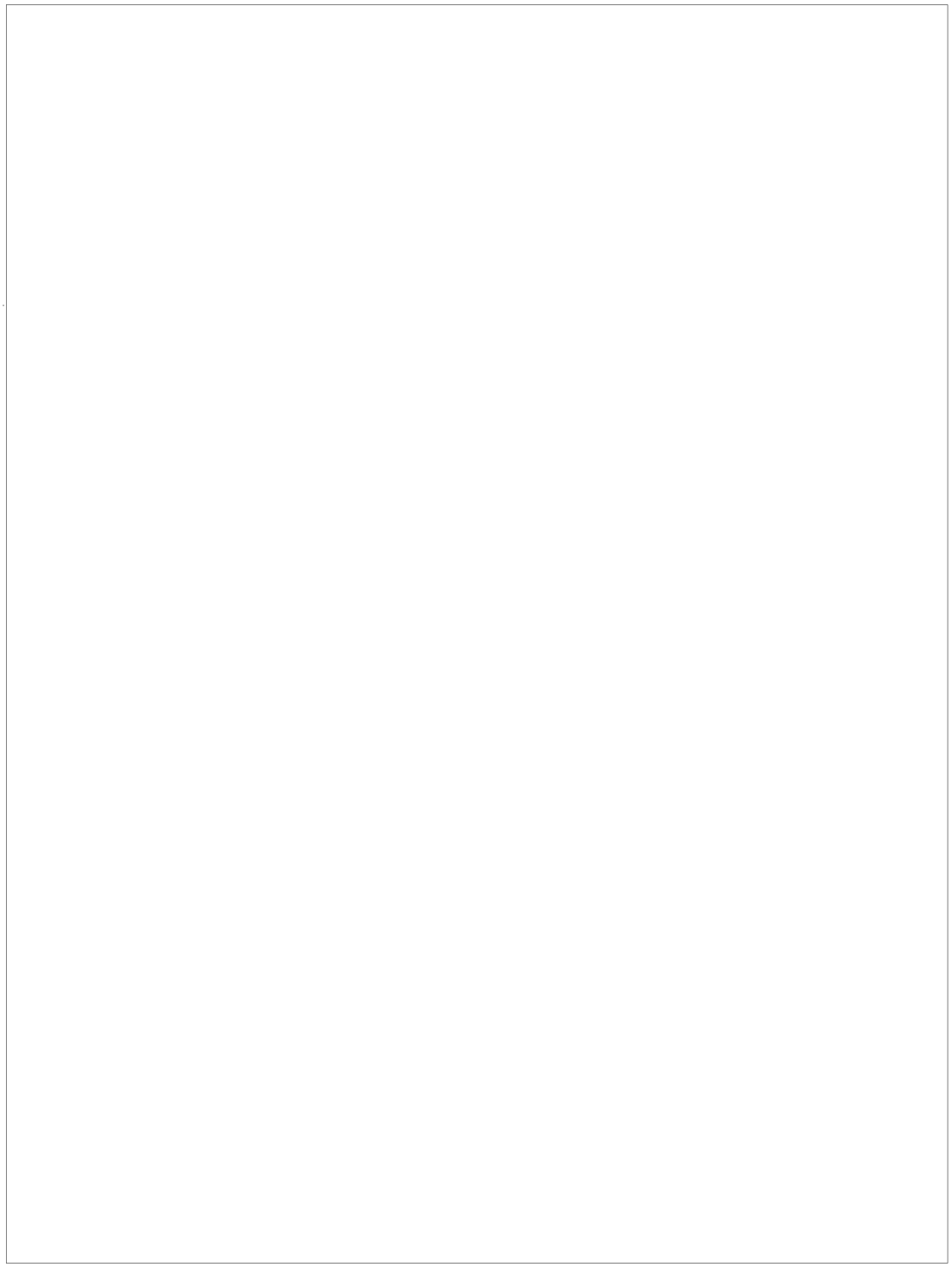
8. (S/WN) Possibly the cylinders have been positioned over the type IIIE silo so that they can serve as an apparatus for load-testing the upper section of the silo. This section probably will be subjected to more weight and stress during repeated loading operations of a new ICBM than of the SS-13 missile, for which the type IIIE silo was originally designed.

Type IIIH Silo Test Site

9. (S/WN) The type IIIH silo test site, constructed between March 1971 and February 1972,[1] is positioned between the tracks of a large gantry crane in the west side of the facility. The first prototype IIIH silo for the SS-17 flight test program at the Tyuratam Missile/Space Test Center SSM [redacted] was completed in June 1972, after the construction of the Leningrad type IIIH site. The type IIIH silo test site at the Leningrad facility consists of a probable phase I type IIIH silo door (Figure 4) and door pocket. 25X1



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10. (S/WN) There are four variations or phases of the type IIIH silo door; each varies slightly in configuration.[2] The phase I silo door—seen at Leningrad, Tyuratam, Yedrovo SSM Complex [redacted] 25X1 and Shagan River Test Area [redacted] 25X1 —was in use until mid-1975, when the first phase II silo door was observed. The phase II silo door is used with converted type IIID silos, which retain the type IIID headworks. The phase III silo door is on variant type IIIH silos, which do not have headworks. The variant silo was first observed under construction at Tyuratam in 1977 and at Yedrovo in 1978. The phase IV door has been seen only on two scratch-built launch silos at the Plesetsk test range.[2] Construction of the Plesetsk silos was started in February 1978. Although only the phase I silo door has been identified at the Leningrad facility, cycles of tests at the type IIIH site correlate closely with the deployment of the four silo door phases at test ranges and deployed complexes, suggesting that the door phases were developed/acceptance tested at this facility.

11. (S/WN) The opening and closing of the type IIIH silo door and the movement of the gantry crane indicate ongoing test activity. Two test cycles which occurred during late 1974 and throughout 1976 are probably related to the development of the phase II and phase III silo door configurations. These tests may also have been associated with the silo vulnerability tests conducted at Shagan River in October 1974. The phase II door was observed at deployed SS-17 complexes in late 1976, and the phase III door was not observed at Tyuratam in 1977 and at Yedrovo in 1978. The silo door at the type IIIH test site was not observed open from April 1977 to May 1979, but other types of tests or preparations for future tests of the phase IV silo door may have been conducted at the site during this time. The area around the type IIIH silo door pocket was partially excavated in February 1976 and remained so until [redacted] 25X1 when the area was backfilled and the door was partially covered with earth. The gantry crane was being operated over the silo during July and September 1977. The area around the door frame had again been excavated by late June 1978 and has remained so since that time. Tests for the phase IV door-opening mechanism probably began during late 1979 and continued through 1980. The silo was open at least once during 1979 and at least twice in 1980; the gantry crane was being operated over the silo during 1980. The summary below provides a chronology of test activity from 1972 to 1982 at the type IIIH silo test site.

Summary of Test Activity at Type IIIH Silo Test Site, 1972 through 1982

February 1972	The silo was completed. Initial door test activity was observed.
July 1972—March 1974	The silo was closed. No apparent test activity was observed.
June 1974—February 1975	The silo was open on [redacted] and probably on [redacted] 25X1 25X1 The test activity was probably related to the phase II door, which was deployed in late 1975. This activity may also have been related to silo vulnerability tests at Shagan River Test Area on [redacted] 25X1
April 1975—February 1976	The silo was closed. No test activity was observed.
February—October 1976	The silo was open on [redacted] 25X1 25X1 Excavation around the door pocket began on [redacted] 25X1 and continued through the test activity. The test activity probably was related to the development of the phase III silo door, which was deployed in late 1976.
April 1977—April 1979	The silo was closed during the period, although a limited test program probably was continued. On [redacted] 25X1 the silo door was almost completely covered with earth, and the area around the door pocket was backfilled. The gantry crane was active over the silo on [redacted] 25X1 The area around the door frame was again excavated on [redacted] 25X1 25X1 This activity may have been related to last-minute changes to the phase III door which was under construction at Tyuratam and Yedrovo during this period. The activity may also have been preparations for testing the phase IV silo door, which was tested during 1980 at Leningrad.
May 1979—August 1980	The silo door was open on [redacted] 25X1 25X1 Activity that was observed was probably final testing for the phase IV silo door, which was installed in the prototype silos at Plesetsk launch site 28 during this period.
September 1980—February 1982	The silo was closed. No test activity was observed.

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Unidentified Silo Test Site

12. (S/WN) This test site is in the west side of the facility and consists of a [redacted] 25X1 shallow silo (Figure 5). A hexagonal environmental cover consisting of a light canvas-covered framework usually covers the silo. A cylindrical test component consisting of an upper and a lower section is usually on the apron beside the covered silo. The lower section of the test component is [redacted] high with an 25X1 outer diameter of [redacted] and an inner diameter of [redacted] The upper section, with eight openings 25X1 around the top edge, is [redacted] high with an outer diameter of [redacted] and an inner diameter of [redacted] 25X1 meter.

13. (S/WN) This silo differs from the other two silos at Leningrad in that it does not strongly resemble any known operational missile silo and does not have a permanently attached door and door-opening mechanism. However, this silo slightly resembles a small command-and-control silo seen at the probable Soviet general staff national-level command-and-control facility at Serpukhov, USSR. Possibly it is a scaled down version of the one at that facility. Variants of this small command-and-control silo have been seen at an SS-20-associated facility at Kapustin Yar Missile/Space Test Center SSM [redacted] 25X1 and at a silo vulnerability test site in the Shagan River Test Area.[3] The unidentified silo at Leningrad and its associated components are much smaller than the Serpukhov silo and components. The inner diameter of the Leningrad silo is [redacted] while the inner diameter of the Serpukhov silo is [redacted] The outer 25X1 diameter of the associated test component at Leningrad is approximately [redacted] and the inner 25X1 diameter is approximately [redacted] The cylindrical headworks test component in the Serpukhov silo has 25X1 an outer diameter of [redacted] and an inner diameter of [redacted] 25X1

14. (S/WN) Typical test activity at this site involves removing the environmental cover and repositioning the test component. This activity has included the emplacement of the test component in the silo and the component's removal. The activity has also included the assembly/disassembly of the component on the silo apron. These tests were conducted at the site in mid-1977, mid-1978, and early and late 1979; the site has apparently been inactive since March 1980. The dates of this test activity show some correlation with the dates of construction of the small command-and-control silos. The silo at Kapustin Yar was under construction in September 1976, approximately 18 months after the test silo was first seen under construction. The silos at Serpukhov and Shagan River were started in early 1980, the approximate time that test activity appeared to have ceased at Leningrad. The summary below provides a chronology of test activity and construction at the unidentified silo test site.

Summary of Activity at Unidentified Training/Engineering Test Site, 1975 to 1982

April–August 1975	The silo test site was excavated. The top section of test component was under the gantry crane.
February–October 1976	Construction and possible test activity occurred at the site. The silo was open and a round component was inside the silo on [redacted] 25X1 [redacted] The component had been removed from 25X1 the silo by [redacted] and placed on the nearby apron under the 25X1 environmental cover. An unidentified flat ringlike component was being assembled on the apron on [redacted] 25X1 [redacted] 25X1
October 1976–April 1977	The site was inactive. The silo aperture and test component remained covered on the apron. The site appeared neat and inactive during the period.
July 1977	Possible test activity occurred at the site. The cover was possibly removed from the silo, and the test component was probably in the silo.
September 1977–April 1978	The site was inactive. The test component was in one piece on apron.
May–July 1978	Possible test activity occurred at the site. The test component was uncovered and disassembled into two parts on the apron. A gantry crane was beside the component in May.
October 1978–March 1979	The component was in one piece on the apron. The mobile crane remained beside the component during the period.
April–May 1979	Possible test activity occurred at the site. The test component was in two parts on the apron. The mobile crane was present.
August–September 1979	The site probably was inactive. The test component was in one piece on the apron.
March–September 1980	Possible test activity occurred at the site. The test component was in two pieces on the apron. Except during August, a lowboy trailer was near the silo during the period.
October 1980–February 1982	The site was inactive. The test component was in one piece and covered.

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Possible New Storage Area

15. (S/WN) During September 1980, construction activity on the east side of the original test area suggested that a new silo test area was under construction. However, the lack of construction since that date suggests that a new storage area has been built. A round object and a ringlike object in this area (Figure 6) also indicated that a silo test site was under construction. The round object, a possible environmental cover for a silo, was [redacted] in diameter, and the ringlike object had a [redacted] outer diameter and a [redacted] inner diameter. These objects appeared to be in storage when observed on recent coverage. 25X1 25X1

New Expansion Area

16. (S/WN) The new expansion area consists of eight buildings, four of which are under construction, and several clearings in the woods for more buildings. A five-bay vehicle garage, a heating plant, and two probable construction workers' barracks in the northwest corner of the new area were probably complete by early 1982. These buildings will probably provide general support for the new area when it becomes operational. One medium-sized shop/assembly building and three small support buildings in the central part of the new area are in the midstage of construction and probably will not be complete until late 1982 or early 1983.

17. (S/WN) Clearing for the security fence around the new area started in late 1975. Further construction was delayed until July 1978, when a temporary security fence was erected around the area. Clearing for the five-bay garage was started during the summer of 1978; by late 1979, the garage was externally complete. Footings for the heating plant were emplaced in late 1979, but construction was delayed until the summer of 1980, after which rapid progress occurred. Two workers' barracks near the heating plant were also completed during 1980. Construction started in the central part of the new area during the summer of 1980. No coverage was obtained of the area between early and late 1981. By the end of that year, the heating plant was complete, and one shop/assembly building and three support buildings were under construction in the central part of the new area (Figure 2). By the end of February 1982, three of the four buildings were erected and under roof cover. Clearings were observed in the trees near the central area; no new building excavations were observed.

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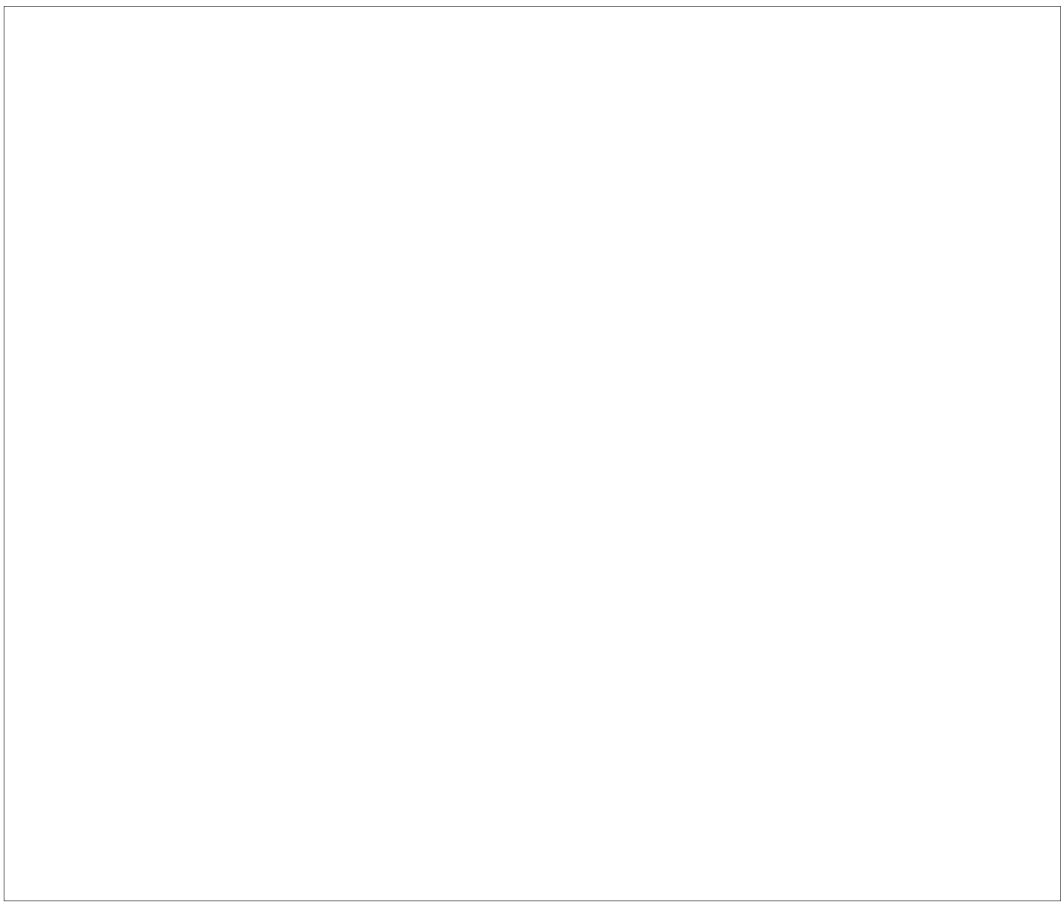

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REFERENCES

IMAGERY

(S/WN) All applicable satellite imagery acquired between September 1974 and the information cutoff date of [ ] was used in the preparation of this report. 25X1 25X1

MAPS OR CHARTS

SAC. US Air Target Chart, Series 200, Sheet 0103-25, scale 1:200,000 (UNCLASSIFIED)

DOCUMENTS

1. DIA. [ ] RDA-11/0024/75, *Leningrad Weapons/Munitions Test Facility,* Aug 75 (TOP SECRET [ ] 25X1 25X1
2. NPIC. [ ] IAR-0166/81, *Soviet Development of a Medium-Sized Solid Propellant ICBM (S),* Sep 81 (TOP SECRET [ ] 25X1 25X1
3. NPIC. [ ] IAR-0286/80, *New Command and Control Silo, Serpukhov, USSR (S),* Oct 80 (TOP SECRET [ ] 25X1 25X1

*Extracted material is classified SECRET [ ] 25X1

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